AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for the controlled dosage of a medicament as a function of time, ~~consisting of~~ comprising the following steps:

   a) ~~Specification of~~ specifying an indication- and substance-dependent target profile, which indicates a desired concentration-time profile or a desired effect-time profile,

   b) ~~Physiology-based~~ physiology-based pharmacokinetic and/or pharmacodynamic ~~simulation~~simulating with a time-variable application profile while taking into account individual anatomical, physiological and/or genetic parameters of the body to be treated and substance-specific input parameters of the medicament to be administered,

   c) ~~Iterative~~iterative numerical ~~adaptation~~adapting of the application profile until the simulated time profile matches the predetermined target profile, and

   d) ~~Control~~controlling of a dosage device on the basis of the result in c).

2. (Currently Amended) The method as claimed in claim 1, ~~characterized in that~~wherein the dosage of the medicament is carried out on humans or animals.

3. (Currently Amended) The method as claimed in claim 1, ~~characterized in that~~wherein the type of application is one ~~of the following types:~~selected from the group consisting of intravenous application, intra-arterial application, intraperitoneal application, intramuscular application, subcutaneous application, topical application, oral application ~~or~~and inhalative application.

4. (Currently Amended) The method as claimed in claim 1, ~~characterized in~~

~~that~~wherein the patient's individual parameters to be taken into account are a ~~selection~~selected from the ~~following:~~group consisting of blood flow rates, volumes and composition (water, fat and protein components) of individual organs, gene expression data of metabolically active enzymes or active transporters.

5. (Currently Amended) The method as claimed in claim 1, ~~characterized in that~~wherein the substance-specific parameters to be taken into account are a ~~selection~~selected from the ~~following:~~group consisting of lipophilicity, binding constants to plasma proteins, free fraction in plasma, solubility (in the aqueous system or in artificial intestinal fluid), permeability coefficient, molar mass, molar volume, and organ/plasma or organ/blood distribution coefficient.

6. (Currently Amended) The method as claimed in claim 1, ~~characterized in that one of the following~~wherein a numerical optimization methods is used ~~as the method for adapting the application profile~~that is selected from the group consisting of: gradient methods~~, in particular quasi-Newton or Newton methods~~; gradient-free methods ~~such as nested intervals~~; and stochastic methods ~~such as Monte Carlo methods~~.

7. (Currently Amended) The method as claimed in claim 1, ~~characterized in that~~wherein the dosage device is an electronically controlled infusion pump, an inhaler or an electronically controlled release capsule for oral application.

8. (Currently Amended) The method as claimed in claim 4, ~~characterized in that~~wherein one or more of the anatomical, physiological and/or genetic parameters ~~may be~~is optionally time-variable.

9. (Currently Amended) The method as claimed in claim 4, ~~characterized in that~~wherein one or more of the anatomical, physiological and/or genetic parameters are measured in real-time during the application.

10. (Currently Amended) The method as claimed in claim 1, ~~characterized in that the~~wherein success of the therapy is additionally monitored online by one or more suitable measurement probes and their measurement signal or measurement signals are

co-employed in order to control the dosage device.